

CHAPTER 2 MECHANICS



Page 34 Ex

- 1 C

Page 37 Ex 2.4

- 1 29 m;
2. (i) $(25 + 11.25) = 36$ m (above sea level)
(ii) 1.5 s
(iii) 27 m s^{-1}
(iv) 4.2 s;
3. 40 m

Page 39 Ex 2. 2

- 1 (a) D
(b) B
(c) A
(d) C
2 Refer to examples in text

Page 43 Ex 2.10

1. less
2. same
3. same
4. less pain
5. same pain
6. lighter materials

Page 45 Ex 2.7

- 1 (i) 20 cm
(ii) 90 N m^{-1}

Page 50 Ex 2.9

1. $680 \text{ N} \rightarrow 1.3 \text{ m s}^{-2}$, $600 \text{ N} \rightarrow 0$, $500 \text{ N} \rightarrow 1.7 \text{ m s}^{-2}$, $600 \text{ N} \rightarrow 0$.
2. 0

Page 54 Ex

- 1 40 m s^{-1}
2. 40 kg

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3. Hint: consider $F = \frac{\Delta p}{\Delta t}$
4. (i) 3.5 Ns
(ii) 14 N

Page 56 Ex

Self evident

Page 59 Ex

- (i) 2000 J
- (ii) 2500 J

Page 66 Ex

1. (i) 4.0 m s^{-1}
(ii) 8000 J
2. 46 %
3. 1800 N

Page 70 Exercises

1. 20 m s^{-2}
2. (a) 11 m s^{-2} (b) 57 N (c) 1.1 s
3. A
4. 2.1 m s^{-2}
5. 6.3 N;
6. 19 m s^{-2}
7. see text
8. (a) 455 N (b) 485 N
9. (a) 3mg (b) 6mg (c) 9 mg.

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Pages 71, 72 Miscellaneous Exercises

Topic 2.1

1. see similar examples in text
2. (i) 1.3 m s^{-2} , -2.5 m s^{-2}
(ii) 130 m
(iii) 2.9 km
3. 20 m
4. 11.3 (3sd) $T = 3.0 \text{ s}$

Topic 2.2

1. see text
2. 29 N;
3. 72 kg;
4. 3.3 m s^{-2} ;
5. A and B;
6. $7.0 \times 10^3 \text{ N}$
7. (i) 6.3 m s^{-1}
(ii) 5.5 m s^{-1}
(iii) 1.2 kg m s^{-1}
(iv) 1.2 N s
(v) 24 N
8. 600 m s^{-1}
9. $v = 4.9 \text{ m s}^{-1}$ $F = 250 \text{ N}$

Topic 2.3

1. $3.6 \times 10^4 \text{ N}$ (both cases);
2. (i) 1000 J
(ii) 1000 J
(iii) 50%
(iv) 500 W;
3. (i) $5.0 \times 10^{-3} \text{ litre s}^{-1}$
(ii) $2.5 \times 10^4 \text{ J s}^{-1}$
(iii) 50 kW
(iv) $2.5 \times 10^4 \text{ W}$
(v) 1000 N